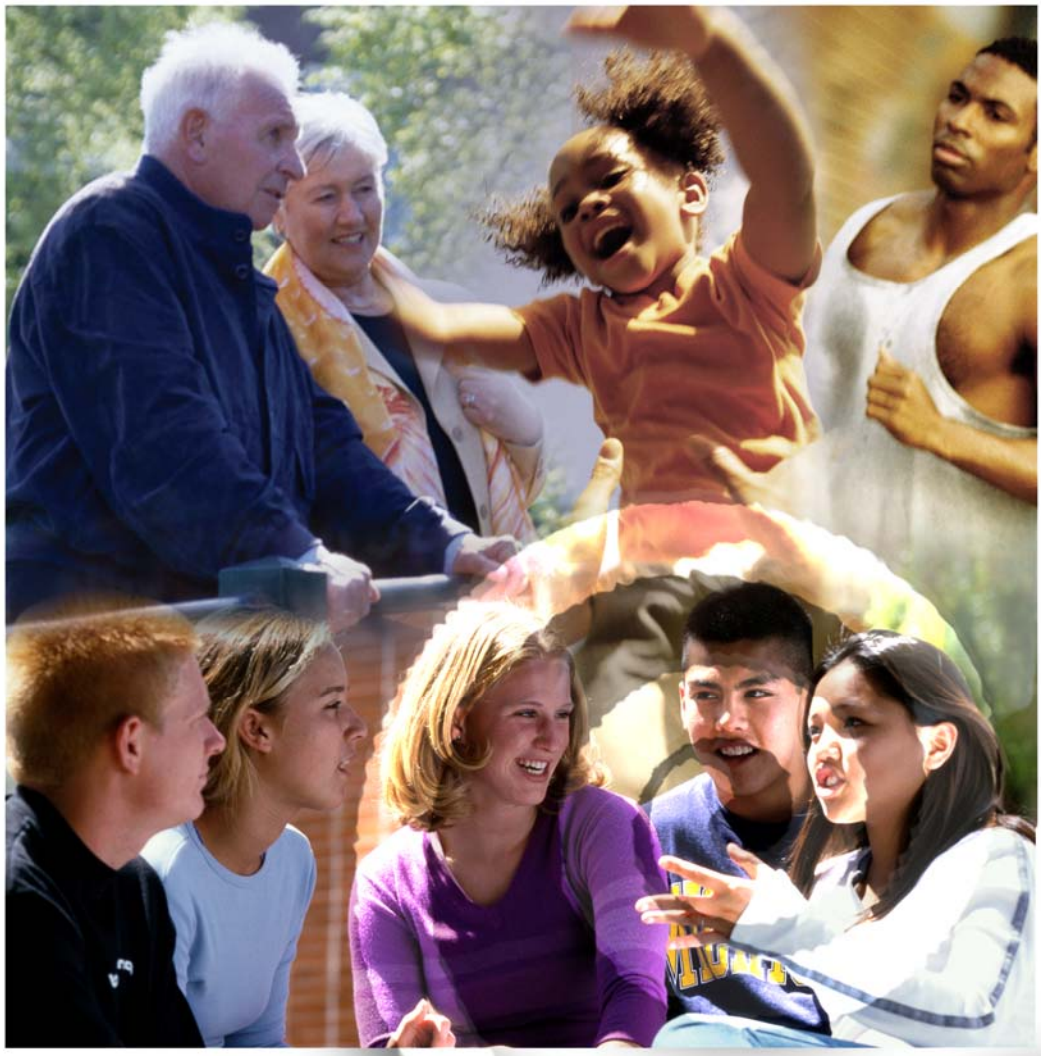
Wisconsin Essential Diabetes Mellitus Care Guidelines

2004



Tools and Resources Included

Developed by The Wisconsin Diabetes Advisory Group

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ACKNOWLEDGMENTS

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INTRODUCTION

Diabetes is a serious, common, costly, yet controllable disease affecting over 329,000 adults in Wisconsin. People with diabetes are at increased risk of diabetes-related complications, including blindness, kidney disease, foot and leg amputations, cardiovascular disease, stroke, and oral infections and diseases. Many of these complications can be prevented, or at least delayed, by optimizing glycemic control and providing ongoing preventive care to include early identification of problems, intervention, and treatment. Despite clinical knowledge of the benefits of optimal glycemic control and preventive care, current studies show that many people with diabetes do not receive such care. This is due to a variety of attitudinal, educational, and systemic barriers. The adoption of the Wisconsin Essential Diabetes Mellitus Care Guidelines (Guidelines) provides one means of improving care and enhancing quality of life for people with diabetes and is a growing feature in many health care practices. Quality improvement initiatives offer another promising strategy to make dramatic improvements in overall health outcomes.

These Guidelines, originally published in 1998 and revised in 2001, were recently again revised to incorporate the latest scientific evidence regarding good diabetes care. The Wisconsin Diabetes Advisory Group, a committee of over 80 key statewide organizations and other health care professionals, collaborated with the Wisconsin Diabetes Prevention and Control Program staff to update the 2004 Guidelines. The target audience for the Guidelines includes primary care providers and many other health care professionals and health systems (e.g., managed care organizations, other insurers, clinics, purchasers, etc.). Based on clinical trials, accepted science, and expert opinions, the Guidelines provide a concise, general framework for the care and prevention of diabetes-related complications.

The following national studies have been instrumental in shaping previous versions of the Guidelines and continue to shape the current Guidelines version for Wisconsin. Each is summarized below:

Diabetes Control and Complications Trial

In a 1993 landmark study, the Diabetes Control and Complications Trial (DCCT) demonstrated that optimal glycemic control in an intensively treated group delayed the onset of microvascular complications (i.e., retinopathy, nephropathy, and neuropathy) and slowed the progression of complications already present in people with Type 1 diabetes. The benefits of sustained lowering of blood glucose levels were seen for all people regardless of age, sex, duration of diabetes, or history of poor control. While this trial promoted optimal glycemic control to achieve desired results, reduction in risk was noted even when blood glucose was not reduced to normal levels. For each two percent decrease in A1c, there was a 50-75% reduction in complications. Furthermore, there was no threshold level of A1c for this effect. A follow-up study indicated that the reduction in risk for microvascular changes lasted for at least four years after the DCCT ended, despite increasing blood glucose levels. Although optimal glycemic control is not appropriate for all people, almost all people are candidates for better control. Any improvement in glycemic control may help decrease the risk of complications.

United Kingdom Prospective Diabetes Study

In 1998, the United Kingdom Prospective Diabetes Study (UKPDS) demonstrated that improved blood glucose control reduced the risk of microvascular complications in people with Type 2 diabetes. For every percentage point decrease in A1c there was a 35% reduction in the risk of these complications. Additional data from this study showed that treatment of high blood pressure also reduced microvascular complications, congestive heart failure, and cardiovascular accident risk. Of further importance in this study are the data indicating that nearly 50% of people at diagnosis had one or more complications of diabetes, demonstrating the need for early diagnosis and treatment of diabetes mellitus.

Diabetes Prevention Program

The Diabetes Prevention Program (DPP) was a large, randomized clinical trial designed to test whether lifestyle modifications or medications could prevent or delay the development of Type 2 diabetes in high risk individuals (i.e., those with fasting plasma glucose values > 95 mg/dL and impaired glucose tolerance). Participants were randomized into one of three intervention groups comparing: 1) intensive lifestyle changes consisting of diet and physical activity, 2) treatment with the oral diabetes drug metformin, 3) placebo (a control group that took placebo pills). The second and third groups also received standard information on diet and physical activity. The DPP was discontinued a year early (2001), because the data had clearly answered the main research questions. The risk of developing diabetes was reduced by 58% in the lifestyle group and by 31% in the medication group, compared to those in the placebo group. This study, together with other smaller studies in China and Finland, demonstrated that Type 2 diabetes can be delayed or prevented in people at risk of Type 2 diabetes regardless of ethnic background. Benefit was markedly increased in people over the age of 60. Lifestyle intervention is therefore proven to be extremely helpful in reducing the risk of developing Type 2 diabetes.

DISCLAIMER

These Guidelines are designed to serve as a tool for supporting and influencing those health care provider decisions that promote and provide consistent, comprehensive, preventive care. With the goal of improving care system-wide, the Guidelines include recommended lab tests, exams, medical checks, and essential education. This document is divided into 14 sections, each providing a quick guide of pertinent information and references. Helpful tools and resources are included at the end of each section to assist providers with integrating the Guidelines into everyday practice. The Guidelines are population-based and therefore intended to be appropriate for most people with diabetes, but not intended to define the optimal level of care that an individual person may need. Clinical judgment may indicate the need for adjustments appropriate to the needs of each particular person (e.g., age, medical condition, or individual glycemic control goal). These Guidelines are an evolving process and, as such, will be reviewed periodically and revised to reflect advances in research and medical knowledge.

SUMMARY OF UPDATES

Section	Updates/Additions
General Recommendations/ Care *(page 1-1)*	✓ Assess physical activity at each visit ✓ Two helpful tools added: 1) Growth Chart – Boys Body Mass Index-for-age Percentiles, 2 to 20 years and 2) Growth Chart – Girls Body Mass Index-for-age Percentiles, 2 to 20 years
Self-Management Education *(page 2-1)*	✓ Expanded text includes seven key self-care behaviors for diabetes self-management education core outcomes ✓ Revised Diabetes Patient Flow Sheet/Chart Audit Tool ✓ Four helpful tools added: 1 & 2) Diabetes Self-Management Behavior Goal Sheets, 3) List of ADA Recognized Programs in Wisconsin, and 4) Diabetes Self-Management Education Record
Medical Nutrition Therapy *(page 3-1)*	✓ Expanded text includes nutrition strategies for non-dieticians ✓ Two helpful tools added: 1) Meal Planning with the Plate Method: Lunch/Dinner and 2) Seven Ways to Size Up Your Servings
Glycemic Control *(page 4-1)*	✓ Expanded text ✓ Four helpful tools added: 1) Algorithm – Type 2 Diabetes: Glycemic Control, 2) Diabetes Medications Update – 2004, 3) Insulin 2004, and 4) Diabetes Sick Days Plan
Cardiovascular Care *(page 5-1)*	✓ Expanded text ✓ Lipid profile: added total cholesterol and non-HDL-cholesterol current levels ✓ Goals updated for: • Total Cholesterol < 200 mg/dL • Triglycerides < 150 mg/dL • HDL ≥ 40 mg/dL (men), HDL ≥ 50 mg/dL (women) • Non-HDL (Cholesterol) < 130 mg/dL • LDL < 100mg/dL (optimal goal), LDL < 70 mg/dL (for very high risk) ✓ Blood pressure < 130/80 mmHg ✓ Smoking status – expanded resources ✓ Aspirin prophylaxis dose change ✓ One helpful tool added: Preventing Cardiovascular Events in Persons at Risk or with Established CV Disease
Kidney Care *(page 6-1)*	✓ Expanded text ✓ **Albumin/creatinine** ratio using a spot urine to screen for microalbuminuria ✓ Serum creatinine annually ✓ Estimated GFR annually and kidney staging ✓ One helpful tool added: Algorithm – Screening and Initial Recommendations for Diabetic Kidney Disease
Eye Care *(page 7-1)*	✓ Expanded text includes the two exceptions to the annual dilated eye exam
Foot Care *(page 8-1)*	✓ Expanded text includes information on peripheral arterial disease (PAD) ✓ Four helpful tools added: 1) Algorithm – Diabetic Foot Disorders ULCER: A Clinical Practice Pathway, 2) Algorithm – Diabetic Foot Disorders INFECTION: A Clinical Practice Pathway, 3) Algorithm – Diabetic Foot Disorders CHARCOT FOOT: A Clinical Practice Pathway, and 4) Monofilament Application Instructions
Oral Health Care *(page 9-1)*	✓ Updated text ✓ One helpful tool added: Interdisciplinary Diabetes Dental Referral Form
Emotional /Sexual Health *(page 10-1)*	✓ New section ✓ One helpful tool added: Patient Health Questionnaire (PHQ-9) with instructions
Immunizations *(page 11-1)*	✓ Updated text
Preconception and Pregnancy Care *(page 12-1)*	✓ Expanded and reorganized text
Screening for Pre-diabetes and Diabetes *(page 13-1)*	✓ New section ✓ Two helpful tools added: 1) Algorithm: Screening for Pre-diabetes and Diabetes and 2) Medical Nutrition Therapy for Pre-diabetes and Metabolic Syndrome

Periodic updates will be made to these Guidelines and will be posted on the Wisconsin Diabetes Prevention and Control Program web page, on the Wisconsin Department of Health and Family Services web site:

http://dhfs.wisconsin.gov/health/diabetes/DBMCGuidelns.htm

WISCONSIN ESSENTIAL DIABETES MELLITUS CARE GUIDELINES, 2004 (ONE-PAGE)

The recommendations in these Essential Diabetes Mellitus Care Guidelines are intended to serve as a guide for clinicians and others involved in the implementation of care and preventive services for people with diabetes. They are not intended to replace or preclude clinical judgement. Abnormal physical or lab findings should result in follow-up/intervention.

For particular details and references for each specific area, please refer to the supporting documents and implementation tools in the full-text guideline available via the Internet at http://dhfs.wisconsin.gov/health/diabetes/DBMCGuidelns.htm or telephone: (608) 261-6871.

Concerns	Care/Test	Frequency
General Recommendations/ Care	♦ Perform diabetes-focused visit	*Type 1**: Every 3 months *Type 2**: Every 3 – 6 months * consider more often if A1c ≥ 7.0% and/or complications exist
	♦ Review management plan, assess problems and goals	Each focused visit; revise as needed
	♦ Assess physical activity	Each focused visit
	♦ Assess nutrition/weight/BMI/growth	Each focused visit
Self-Management Education	♦ Refer to diabetes educator, preferably a certified diabetes educator (CDE); curriculum to include the ten key areas of the national standards for diabetes self-management education	At diagnosis, then every 6 – 12 months, or more as needed
Medical Nutrition Therapy	♦ Refer to registered dietician, preferably a CDE; to include areas defined by the American Dietetic Association's Nutrition Practice Guidelines	*Type 1*: At diagnosis; then, if age < 18, every 3 – 6 months; if age ≥ 18, every 6 – 12 months. *Type 2*: At diagnosis; then every 6 – 12 months or more as needed
Glycemic Control	♦ Check A1c **(see Algorithm 1)** Goal: < 7.0% or ≤ 1% above lab norms	*Type 1*: Every 3 months *Type 2*: Every 3 – 6 months
	♦ Review goals, meds, side effects, and frequency of hypoglycemia	Each focused visit
	♦ Assess self-blood glucose monitoring schedule	Each focused visit, 2 – 4 times/day, or as recommended
Cardiovascular Care	♦ Check lipid profile Adult goals**:** Total Cholesterol < 200 mg/dL Triglycerides < 150 mg/dL HDL ≥ 40 mg/dL (men) HDL ≥ 50 mg/dL (women) Non-HDL (Cholesterol) < 130 mg/dL LDL < 100 mg/dL (optimal goal) LDL < 70 mg/dL (for **very** high risk)	*Children*: If > 2 years, after diagnosis and once glycemic control is established. Repeat annually if abnormal. Follow National Cholesterol Education Program (NCEP III) guidelines. *Adults*: Annually. If abnormal, follow NCEP III guidelines.
	♦ Blood pressure Adult goal: < 130/80 mmHg Pediatric goal: below 90% of ideal for age	Each focused visit
	♦ Assess smoking status	Each visit; if smoker, counsel to stop; refer to cessation
	♦ Start aspirin prophylaxis (unless contraindicated)	Age > 40 with diabetes; Age ≤ 40, individualize based on risk
Kidney Care	♦ Check albumin/creatinine ratio using a random urine sample, also called urine microalbumin/creatinine ratio (**see Algorithm 2**)	*Type 1*: Begin with puberty or after 5 years duration, then annually *Type 2*: At diagnosis, then annually
	♦ Check serum creatinine	At diagnosis, then annually
	♦ Perform routine urinalysis	At diagnosis, then as indicated
Eye Care	♦ Perform dilated eye exam by an ophthalmologist or optometrist	*Type 1*: If age ≥ 10, within 3 – 5 years of onset, then annually *Type 2*: At diagnosis, then annually; two exceptions exist (see Section 7)
Foot Care	♦ Inspect feet, with shoes and socks off	Each focused visit; stress need for daily self-exam
	♦ Perform comprehensive lower extremity exam	Annually, with monofilament
Oral Care	♦ Perform oral health screening	At diagnosis, then each focused visit
	♦ Advise dental exam by general dentist or periodontal specialist	At diagnosis, then every 6 months (if dentate) and every 12 months (if edentate)
Emotional/Sexual Health Care	♦ Assess emotional health; screen for depression	Each focused visit
	♦ Assess sexual health concerns	Each focused visit
Immunizations	♦ Provide influenza vaccine	Annually, if age ≥ 6 months
	♦ Provide pneumococcal vaccine	Once; then per Advisory Committee on Immunization Practices
Preconception and Pregnancy Care	♦ Provide preconception counseling/assessment	3 – 4 months prior to conception*
	♦ Assess contraception/discuss family planning	At diagnosis and each focused visit*
	♦ Screen for gestational diabetes	At 24 – 28 weeks gestation or sooner if high risk* * consider referring to provider experienced in care of diabetic women during pregnancy
Screening for Pre-diabetes and Diabetes	♦ Perform fasting plasma glucose test or oral glucose tolerance test (**see Algorithm 6**)	Test all people ≥ age 45; if normal and person has no risk factors, retest in 3 years

(SEE BACK)

Screening for Pre-diabetes and Diabetes

Test all people ≥ 45 years for pre-diabetes and diabetes. If screening results are normal and person has no risk factors, re-testing should occur at 3-year intervals. Screen at a younger age or more often if the person has one or more risk factors from the following list:

1) Body mass index (BMI) ≥ 25 kg/m^2
2) Sedentary lifestyle
3) Prior history of pre-diabetes/glucose intolerance
4) Race/ethnicity (e.g., African-Americans, Hispanic-Americans, Native Americans, Asian-Americans, and Pacific Islanders)
5) Family history of diabetes in one or more first-degree relatives
6) History of hypertension (>140/90 mmHg)
7) History of vascular disease
8) History of dyslipidemia: HDL ≤ 35 mg/dL and/or a triglyceride level ≥ 250 mg/dL
9) Markers of insulin resistance: (e.g., acanthosis nigricans and/or waist circumference > 40 inches in men and > 35 inches in women)
10) History of polycystic ovary syndrome (PCOS)
11) History of gestational diabetes mellitus (GDM) in women or delivery of a baby weighing more than nine pounds at birth

Table 1: Diagnosis of Pre-diabetes and Diabetes (2004 Criteria)

Test	Fasting Plasma Glucose (FPG)	Oral Glucose Tolerance Test (OGTT)	Random/Casual Plasma Glucose (with symptoms)
How Performed	Blood glucose is measured after at least an 8 hour fast	75-gram glucose load (drink) is ingested after at least an 8 hour fast; blood glucose is measured at 2 hours	Blood glucose is measured at any time regardless of eating
Normal	< 100 mg/dL	< 140 mg/dL	
Pre-diabetes (IFG)	100 – 125 mg/dL		
Pre-diabetes (IGT)		140 – 199 mg/dL	
Diabetes Mellitus	≥ 126 mg/dL ❖	≥ 200 mg/dL	≥ 200 mg/dL ❖⌘ (with symptoms)

IFG: Impaired fasting glucose
IGT: Impaired glucose tolerance
❖ Test must be confirmed by repeating on a different day
⌘ It is not appropriate to have a person eat a meal and then draw a random glucose two hours after